ment by aiding students to push forward the boundaries of understanding and enrich human life by aiding them in the cultivation of beauty and taste." In accordance with these purposes the foundation offers fellowships, normally of the value of $2,500 a year, tenable abroad under the freest possible conditions for research in any field of knowledge and for creative work in any of the fine arts. The fellowships are open to men and women, whether married or unmarried, of every race and creed, on equal terms. The foundation has a capital fund of $4,500,000.

The trustees of the foundation, in addition to the founders, are Francis H. Brownell, Carroll A. Wilson, Charles D. Hilles, Roger W. Straus and Charles Earl.

SCIENTIFIC NOTES AND NEWS

AT the annual garden party of the New York Zoological Park on May 22 a bronze elephant, executed by the late Carl Akeley, was presented by Mr. Madison Grant on behalf of the executive committee to Professor Henry Fairfield Osborn as a token of his thirty-five years of service to the Zoological Society.

AT the annual commencement of the University of California on May 14 Mr. F. H. Seares, astronomer and assistant director of the Mount Wilson Observatory, was awarded the honorary degree of doctor of laws.

AT the forty-sixth commencement of the Case School of Applied Science on May 29 the doctorate of science was conferred on Dr. W. W. Coblentz, physicist, of the Bureau of Standards, and the doctorate of engineering on Mr. John Lyle Harrington, consulting bridge engineer, of Kansas City, Missouri. On Wednesday evening Dr. Coblentz addressed the Case chapter of the Society of Sigma Xi.

THE Museums of the Peaceful Arts, the American Institute and the New York Electrical Society gave a luncheon at the Hotel Astor on May 27 in honor of Sir William Henry Bragg, Fullerian professor of chemistry and director of the Royal Institution, London, and of the Davy Faraday Research Laboratory.

AT the recent annual general meeting of the British Chemical Society the prize and plaque to perpetuate the memory of Edward Frank Harrison, director of chemical warfare during the war, was presented to Dr. Reginald Patrick Linstead. This prize is awarded every three years to the chemist, not over 30 years of age, who is judged by a committee consisting of the presidents of the Chemical Society, the Society of Chemical Industry, the Pharmaceutical Society and the Institute of Chemistry to have made the most meritorious original contributions to chemical science during the previous five years. Professor J. F. Thorpe, president of the society, made the presentation.

DR. CARL LEAVITT HUBBS, curator of fishes in the museum of the University of Michigan and assistant professor in the department of zoology, has received the faculty award for a member of the teaching staff, not above the rank of assistant professor, who, in the opinion of a special committee of the university senate, has won special distinction in his field.

DR. HARRY N. EATON, of Elmira College, was elected to succeed Professor Edward S. C. Smith, of Union College, as president of the New York State Geological Association at the recent Schenectady meeting. Professor O. D. von Engeln, of Cornell University, was elected secretary to succeed Professor Harold L. Alling, of Rochester University.

THE Society for Experimental Biology and Medicine, New York City, has elected the following officers for the coming year: *President,* Peyton Rous; *vice-president,* D. J. Edwards; *secretary-treasurer,* A. J. Goldforb; *councillors,* Alfred E. Cohn, Leon J. Cole, C. F. Cori, A. B. D. Fortuyn, F. P. Gay, J. T. Halsey, A. C. Ivy, W. Ophüls, W. J. V. Osterhout, W. W. Palmer, F. H. Scott, H. D. Senior, P. A. Shaffer, F. M. Smith and G. B. Wallace.

MR. G. A. ORTH, executive of the American Car and Foundry Company and a member of the executive committee of the National Society of Safety Engineers, has been elected president of the New York chapter.

IT is announced in *Nature* that Sir Ernest Rutherford, president of the Royal Society, has been appointed chairman of the Advisory Council of the Department of Scientific and Industrial Research in succession to Sir William McCormick as from October 1. Professor V. H. Blackman will serve as chairman until October.

DR. R. G. AITKEN, who has been in charge of the active administration of Lick Observatory since July 1, 1923, with the title of associate director, has been named director, the appointment to date from July 1.

DR. W. A. RILEY, at present head of the department of zoology at the University of Minnesota, will become chief of the division of entomology in the same institution on July 1, when R. N. Chapman leaves to become director of the Experiment Station at the University of Hawaii.

PROFESSOR FRANZ SCHRADER, of Bryn Mawr Col-

lege, has been appointed professor of cytology in the department of zoology at Columbia University.

PROFESSOR R. KEITH CANNAN, of University College, London, has been appointed head of the department of biochemistry at the University and Bellevue Hospital Medical College, New York University. Professor Cannan was born in California. He has worked with Professor William Mansfield Clark in Washington and has taken part in teaching at Western Reserve University.

DR. NATHAN B. EDDY has resigned as associate professor of physiology and pharmacology at the University of Alberta to become associate professor of pharmacology at the University of Michigan.

THE following promotions have been made at the University of Washington: Dr. John E. Guberlet, associate professor of zoology to a full professorship; Albert L. Seaman, from instructor in geology to assistant professor; Clinton L. Utterback, from assistant to associate professor of physics, and John Perry Ballantine from assistant to associate professor of mathematics.

RECENT changes in and new appointments on the staffs of the Texas Agricultural Experiment Station and the Extension Service, Agricultural and Mechanical College of Texas, include J. N. Roney, division of entomology, Experiment Station, entomologist of the plant lice laboratory, Dickinson; S. E. Jones, entomologist of the Experiment Station, to succeed C. J. Todd, resigned to enter irrigation farming; H. P. Smith, for a number of years associate professor of agricultural engineering at the college, chief of the division of agricultural engineering in the Experiment Station.

DR. PAUL E. WESTON has resigned as research chemist for the Roessler and Hasslacher Chemical Co., Perth Amboy, New Jersey, to accept a position as Senior Eli Lilly Research Fellow at Purdue University.

DR. HORACE B. ENGLISH, professor of psychology at Antioch College, has accepted appointment as professor of psychology at Ohio State University. Dr. Clarence Leuba, lecturer in psychology at Bryn Mawr College, has been appointed associate professor of psychology at Antioch College in succession to Dr. English.

THE J. T. Baker Chemical Company's fellowship in analytical chemistry, eastern division, has been awarded to Mr. Reuben Roseman, who will work at Johns Hopkins University under the direction of Professor W. M. Thornton, Jr., on a problem relating to the use of powerful reducing agents in volumetric analysis.

THE regius chair of medicine in the University of Aberdeen, rendered vacant by the resignation of Professor Ashley Watson Mackintosh, has been filled by the appointment of Dr. Leybourne Stanley Patrick Davidson.

PROFESSOR F. MARION LOUGEE, of the department of chemistry, of Keuka College, who is on leave of absence for the semester, is engaged in research work at the University of London and will travel on the continent during the summer. Dr. Minnie A. Graham is in charge of the department during Dr. Lougee's absence.

ARTHUR PAUL JACOT, of the department of biology of the Shantung Christian University, will spend the summer at the Marine Biological Laboratory of Sendai University, Asamuchi, northern Nippon, through the kindness of its director, Dr. Shinkishi Hatai, and a grant from the Elizabeth Thompson Science Fund, to study the moss-mites of the region and the scale characters of the mullets of those waters.

DR. ALEŠ HRDLIČKA, of the U. S. National Museum, left Washington on May 5 for Alaska. This year's expedition will be devoted to the anthropologically practically unknown Kuskokwin River. Dr. C. E. Resser left on May 13 to resume his studies of the Cambrian stratigraphy of the Rocky Mountains. The first two weeks will be spent in the Grand Canyon, where in cooperation with the Carnegie Institution search for fossils in the pre-Cambrian strata will be made. Mr. J. N. B. Hewitt left on May 10 to continue his researches on the Iroquois, and Dr. F. H. Roberts, Jr., of the Bureau of American Ethnology, left on May 12, for a point twenty-five miles southwest of Zuñi to excavate a series of pit house ruins belonging to the earliest stages of the prehistoric pueblo people.

PROFESSOR J. H. ASHWORTH, head of the department of zoology of the University of Edinburgh, gave a lecture at the University of Michigan, May 12, on "The Nervous System of Annelids in Relation to Movement." This lecture was under the auspices of the department of zoology.

DR. ROGER ADAMS, professor of organic chemistry and director of the department of chemistry of the University of Illinois, delivered the Charles E. Dohme Memorial Lectures at the Johns Hopkins University, School of Medicine, on May 1, 2 and 3. The subjects were: A Survey of Various Important Contributions of Organic Chemistry to Medicine; The Use of Chaulmoogra Oil, Chaulmoogric Acid and its Constitution; Synthetic Homologs and Analogs of Chaulmoogric Acid and their Bactericidal Action.

DR. RAYMOND C. MOORE, professor of geology in the University of Kansas, recently gave an illustrated

lecture on the Grand Canyon of the Colorado in Arizona before an open meeting of the local chapter of Sigma Xi at the University of Nebraska.

THE annual address before the Virginia Chapter of Sigma Xi was delivered by Dr. C. E. McClung, professor of zoology, University of Pennsylvania, on May 16. At this meeting the President and Visitors' Research Prize of $100 was awarded for the best paper on research in the University of Virginia during 1929 to Dr. Carl C. Speidel, associate professor of anatomy, for his work on hyperthyroidism. At this meeting twenty new members were admitted to membership in the chapter.

DR. FRANK E. E. GERMANN was the guest speaker at the fortieth annual meeting of the Nebraska Academy of Sciences, meeting on May 9 and 10 under the auspices of the Peru State Teachers College, Nebraska. At the general session he spoke on "The Use of Physical and Physico-chemical Measurements in the Sciences" and at a joint session of the mathematicians, physicists and chemists on Saturday morning his subject was "Para Hydrogen."

THE twentieth meeting of the Australasian Association for the Advancement of Science was held in Brisbane during the week commencing May 28, under the presidency of Mr. E. C. Andrews, government geologist, Sydney. The local honorary secretary for the meeting is Dr. D. A. Herbert, the University, Brisbane.

ON May 3 and 4 the department of geology of Washington University, under the supervision of Vice-chancellor Walter E. McCourt, entertained the faculty and advanced students of the department of geology of the Missouri School of Mines at a luncheon and dinner. An opportunity was afforded for the visitors to go through the new geology building on the campus at Washington University and to take a short field trip in the vicinity of St. Louis. Those attending included Dr. and Mrs. C. L. Dake, Dr. H. A. Buehler, Dr. and Mrs. G. A. Muilenburg, Dr. and Mrs. J. Bridge and Dr. O. R. Grawe.

PLANS are being made at Northwestern University for a hospital at Chicago Avenue and Fairbanks Court, Chicago, which are said to be the culmination of more than eight years of negotiation for the complete reaffiliation of Wesley Memorial Hospital and Northwestern University. The main building of the new hospital, to be erected at a cost of $5,000,000, will be 18 stories in height and its tower will extend upward 12 more stories. It will have 600 beds. Its clinics, together with the existing facilities the university has in Passavant Hospital, will form on the McKinlock campus a complete medical center, capable of caring for almost 1,000 patients. The new hospital will be largely devoted to patients from salaried and wage-earning families, according to George W. Dixon, president of the board of trustees of Wesley Hospital. More than two thirds of the patients will be cared for at less than average cost, and many will be cared for free of charge. On the other hand, complete apartments, including three rooms, a kitchenette and bath, a heretofore unknown feature in hospital equipment, may be obtained during convalescence, at a cost of $100 a day.

THE dedication of the new central unit of the main engineering building of the Pennsylvania State College took place during the annual industrial conference, which opened on May 14. The building was erected and equipped at a cost of $350,000 as part of the four-year $4,250,000 building program whose completion will be celebrated this Fall on the occasion of the seventy-fifth anniversary of the founding of the college. Speakers at the dedication included Messrs. N. F. Dougherty, of the General Motors Corporation; L. K. Sillcox, vice-president of the New York Air Brake Company; F. J. Chesterman, vice-president of the Bell Telephone Company of Pennsylvania; R. L. Streeter, vice-president of the Pennsylvania Railroad, and Dean Sackett.

AT a general meeting of the members of the Royal Institution held on May 7, Sir Robert Robertson, treasurer and vice-president, in the chair, it was announced that the managers had received and accepted from the trustees of the Rockefeller Foundation an offer of a donation of £20,000 for endowment of research in the Davy Faraday Laboratory, on condition that the sum of £50,000 for the same purpose should be secured by the Royal Institution from other sources before June 30, 1933.

THE Rockefeller Foundation has given $150,000 to the University of the Philippines to construct a building to house the university's Graduate School of Hygiene and Public Health. A condition that the university provide a suitable site and an annual budget of $40,000 has been met. The University of the Philippines is owned and operated by the state. It has about 5,000 students, most of them Filipinos.

THE Permanent Science Fund held by the Boston Safe and Deposit Company as trustee has made through the Boston Academy of Arts and Sciences the following appropriations: To Professor Harlow Shapley, of Harvard University, $500 to be devoted to the employment of an experienced assistant in measuring periods and light curves of variable stars of the Cepheid class, and $1,000 for the employment of an expert assistant in a systematic study of eclipsing binaries by means of the Harvard plates; to Professor

C. T. Brues, of Bussey Institution, Harvard University, $600 for the purpose of photographic equipment and materials to aid in a study of the movement of insects; to Professor C. I. Reed, of the University of Illinois College of Medicine, $500 for use in a study of the influence of irradiated ergosterol on metabolism, and to Professor J. Leroy Conel, Boston University School of Medicine, $500 to be used for the collection of embryos of the hagfish, *Bdellostoma stouti,* necessary for the completion of researches on the development of the brain.

THE Geographic Society of Chicago has inaugurated a Research Series of lectures arranged by the research committee, of which Professor William H. Haas, of Northwestern University, is chairman. In announcing this series of lectures the society continues the policy which it adopted last year. The essentials of this policy are (1) that the lectures be given by men of recognized standing in scientific geography, (2) that the lectures represent field investigations of significant problems and (3) that the lectures be given for the first time before the society. The lectures are held in Fullerton Hall, Art Institute of Chicago. The titles for 1930 are as follows: March 19—Dr. Preston E. James, the University of Michigan, "Vicksburg: A Study in Urban Geography." April 23—Dr. Charles C. Colby, the University of Chicago, "Regional Integrity and Intra-regional Variations as Evidenced by Peace River Communities." May 19—Dr. Derwent S. Whittlesey, Harvard University, "The Lancaster Community: A Study of Land Occupance in Northern New England Sequent to the Epoch of Farm Abandonment."

Two new funds have been made available to the National Research Council for research. One of these, an appropriation of $22,500 from the Spelman Fund, is for the continuation of the work of the committee of the Division of Anthropology and Psychology on child development for the two fiscal years, 1930–31 and 1931–32, at the rate of $10,000 per year, and includes also $2,500 to cover the quarter from the close of the present fiscal year of the committee on March 31, to the beginning of the regular fiscal year of the council on July 1. The second fund is an appropriation of $18,800 from the Commonwealth Fund for the support of the work of the joint committee of the Divisions of Medical Sciences and of Biology and Agriculture on infectious abortion for a three-year program of study on this pernicious disease. This money will be applied toward the maintenance of a cooperative central laboratory at the Michigan State College of Agriculture and Applied Science for the culture and study of strains of the organism, *Brucella,* the cause of the disease.

MR. DANIEL C. JACKLING, of San Francisco, president of the Utah Copper Company, has made provision for the establishment at the Missouri School of Mines and Metallurgy at Rolla, of which he is a graduate, of the Jackling Foundation for education in the sciences and arts pertaining to the mineral industry, its purpose being to aid worthy students by means of generous loan funds and to provide scholarships and special educational features not ordinarily provided for at state schools. The fund, through contributions already made and to be made by Mr. Jackling, may eventually amount to $600,000. Of this amount $100,000 is to be used as a loan fund, and the income from $500,000 for scholarships and special educational purposes. About twenty years ago Mr. Jackling established the Jackling Loan Fund at the School of Mines, which has already given assistance to three hundred students.

ACCORDING to the London *Times* at a hearing before Bromley justices it was ruled that the British Association must pay taxes on Down House, Darwin's old home. Mr. O. J. R. Howarth, secretary of the association, who lives at Down House, said that in 1928 Sir Arthur Keith, then president of the association, made a deed for the preservation of Down House. Mr. George Buckston Browne then acquired the property at his own expense and had it transferred to the British Association, together with an endowment for its maintenance as a memorial to Darwin. He intended that the house and grounds should be used for the benefit of science. The witness went to live there in September, 1929. He was the servant of the association, and had a large number of duties to perform. Cross-examined by Mr. Done, the witness said he carried on his duties at Burlington House and at Down House. Before Down House was acquired all the work was done at Burlington House. The secretarial staff was kept at Burlington House. The staff at Down House consisted of two custodians and a gardener. A very substantial correspondence was addressed to him at Down House. Mr. Lane submitted that Mr. Howarth resided on the premises exclusively to carry out the objects of the association. Mr. Done held that Mr. Howarth's main object in living at Down House was residential. The chairman, in giving the decision of the bench, said they were of opinion that the occupation of part of the premises by Mr. Howarth under the terms of the arrangement between him and the association was such that, although the association was exempt under the Scientific Societies Act, 1843, the premises could not be considered to be occupied exclusively for the transaction of the business of the association or for the carrying out of its objects.

THE British Secretary of State for the Colonies

has asked the High Commissioner for the Malay States to appoint Mr. Theodore Hubback, lately honorary Game Warden in Pahang, to report on the whole question of the wild fauna of Malaya. It is contemplated that a high official of the Federated Malay States government should be associated with him as assessor. In general the object of the appointment is to make regulations for the preservation of wild life, including the administration of national parks, wild life refuges and game reserves, and to suggest methods for dealing with any damage to agriculture done by wild animals.

DISCUSSION

THE "GIBBS PHENOMENON"—A MISNOMER

A FOURIER series corresponding to a function, $f(x)$ of period 2π, and convergent over an interval on the X-axis over which $f(x)$ is continuous, under very general conditions converges uniformly over any closed subinterval. If, however, $f(x)$ has a discontinuity of the kind sometimes called a "finite jump" in an interval over which it is otherwise continuous, convergence is not uniform over any neighborhood of this point. The approximation curves, $y = s_n(x)$, have maxima and minima whose distances from the limit curve, $y = f(x)$, do not approach zero when n becomes infinite, although the abscissa of each such extreme value identified by counting from the discontinuity approaches the abscissa of the discontinuity. Briefly, this is what is known as the "Gibbs phenomenon." It seems to have been first noticed by Gibbs and was briefly described by him in a note in *Nature*[1] published in 1899. The name was applied by Bôcher in his widely read paper[2] on Fourier series. The approach by Gibbs and Bôcher and generally by subsequent writers was graphical, and the "phenomenon" should be thought of as a graphical one.

However, this "phenomenon" is in no way limited to Fourier series but is characteristic of the approximation curves of many non-uniformly convergent series. In two papers[3] now classical in the theory of uniform convergence Osgood treats with exhaustive care the behavior of "peaks" in the neighborhood of points of non-uniform convergence. He does not explicitly study Fourier series. But the behavior of approximation curves is a general problem and it is treated by Osgood in a general way. There is nothing essential to the so-called "Gibbs phenomenon" which he does not study and illustrate by examples. His approach is primarily graphical and his papers antedate the note of Gibbs by three years. His treatment is careful and thorough as against the somewhat casual character of Gibbs's note.

If the name of any individual is to be applied to the behavior of "peaks" in the neighborhood of points of non-uniform convergence it should be the name of Osgood. The term Gibbs phenomenon has been applied to such behavior in the study of series of Bessel's[4] functions. Even if the name is retained for Fourier series, I do not see that it is justified for other series. Its only justification is that Gibbs remarked for Fourier series a situation the essentials of which were already widely known for other series.

TOMLINSON FORT

LEHIGH UNIVERSITY,
JANUARY, 1930

THE PROBLEM OF SALINE DRINKING WATERS

IN the February 21, 1930, issue of SCIENCE, V. G. Heller and C. H. Larwood reported experiments on the deleterious effects of certain saline drinking waters. In the course of a ground-water survey of northwestern Minnesota a few years ago, the writer had opportunity to observe in the field similar effects from waters of moderate concentrations, mostly lower than those reported by Heller and Larwood. The worst waters appeared to be those rich in sulphates. The waters are commonly (though often incorrectly) referred to as "alkali" waters. The sulphates in some waters are accompanied by true alkali, *i.e.*, soda or potash, but lime and magnesia generally are more abundant. Some are associated with high chlorides and others are not.

These high sulphate waters in Minnesota are common in the till-plain just east of the glacial Lake Agassiz basin and in the lake-bed itself (now the Red River Valley). Thus nine representative samples taken from various depths and localities in Stevens County range in salinity from 664 to 2,800 p.p.m., and the average of the nine is 1,575 p.p.m. anhydrous salts. The minimum sulphate is 29 per cent., the maximum 58 per cent. and the average 49 per cent., or approximately 770 p.p.m. The averages of the other main constituents are: Ca 14 per cent., Mg 5 per cent., Na 11 per cent., K 2 per cent., CO_3 (including HCO_3, recalculated) 16 per cent., Cl 1 per cent. In four of the nine samples, Na is more abundant than Ca. The low amount of chloride is noteworthy.

In the Cretaceous waters which are tapped by drilling in the Red River Valley farther west, sul-

[1] Josiah Willard Gibbs, *Nature*, 59: 606.

[2] Maxime Bôcher, *Annals of Mathematics*, 7: 129, 1906.

[3] William Fogg Osgood, "Non-uniform Convergence and the Integration of Series Term by Term," *Amer. Jour. of Math.*, 19 (1897), read August 31, 1896; "A Geometrical Method for the Treatment of Uniform Convergence and Certain Double Limits," *Bull. Amer. Math. Soc.*, 3: 59, November, 1896, read August 31, 1896.

[4] For example, C. N. Moore, *Bull. Amer. Math. Soc.*, 34: 414, 1928.